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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,979	01/23/2002	Stuart Speakman	M0274/7029	8937

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EXAMINER

PADGETT, MARIANNE L

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/937,979

Applicant(s)

Speakman et al

Examiner

M. L. Pudge

Group Art Unit

1742

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 7/18/03
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 77-147 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 77-147 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☒ Interview Summary, PTO-413 (paper #8)
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

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1. Claim 97 remains rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have alleged, but not provided a definition, which they maintain means that alpha particles are to be consider electromagnetic radiation. A review of "Electromagnetic Radiation" as described by the Encyclopedia of Physics, 2<sup>nd</sup> ed., does not appear to agree with applicant's analysis. Particularly see p. 286, middle the first column (1<sup>st</sup> full paragraph), where a listing of electromagnetic radiation includes ~~gamma~~<sup>alpha</sup> ray to low frequency, long wavelength radio waves, which includes radiant heat and energy. The examiner must conclude from the available information, that one of ordinary skill in the art would not consider ~~mu~~<sup>alpha</sup>-particles to be electromagnetic radiation, per se. If we are to consider ~~mu~~<sup>alpha</sup>-particles, to read on the claim's limitations, we must consider all particle beams, plasmas, etc, which does not appear reasonable.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 77-79, 81-85, 87-92, 95, 97, 109, 112, 118—120, 122, 125, 128-130, 134, 136, 138-140 & 147 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith, Jr. et al (5,810,988), as applied in section 4 of paper #7, mailed 1/16/03.

Claims 80, 86, 93-94, 96, 98-108, 110-111, 112-117, 123-124, 126-127, 131-133, 135, 137 & 141-146 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, Jr. et al, as applied in section 4 of paper #7, mailed on 1/16/03.

Applicants' arguments to exclude the use of electromagnetic radiation from being used in electrostatic processing is not convincing, because the power sources and currents that are applied to produce the electrostatics employ electromagnetic radiation, and as can be seen in the figure on the front or, for example Fig. 5, the power or current is applied to the driver #16 on cover or the electromagnetic yoke in the driver in Fig. 5), thus producing and/or using electromagnetic radiation to locally expose the deposition

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material in what is part of the operating zone, and the energy applied here helps or is used in controlling the delivery of the drops, hence reads on applicants' claim language as written. Note that the claimed "locally exposing the operating zone" can be anywhere between the apparatus and the substrate, which includes local exposure to created electromagnetic field at or around the nozzle, which would have been produced by these teachings. Furthermore, heaters taught to be employed at reference #18, include infrared or induction heaters, both sources electromagnetic radiation, as the former employs IR, and the latter to known by one of ordering skill to use high frequency radiation, such as microwave or radio frequency to cause heating, i.e. temperature control. Such application of electromagnetic radiation would read on the claims as written, and any heat input when leaving the area of the nozzle will effect coalescence, thus the solidity at the substrate. In order to exclude Smith, Jr. et al, the claim would appear to need to be a bit more specific as to the "locally exposing", and to how or what about the coalescence is being controlled.

4. Claims 97 – 104 and 143 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, Jr. et al as applied to claims 77-147 above, and further in view of Adler (EP-0,641,648A) or Hallman et al,(E.P.O, 776,763A1), as applied in section #5 of paper #17.

5. The translation to DE 42 28344A1 to Feld et al, is supplied, and its teachings appear to be narrower, or more focused than Smith et al, with specifics differing. As discussed in the Implementation examples on p. 6 of the translation, the electric field created is made by applying direct current, which (voltage = 1-20 KV), and while flowing

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electrons from D.C. current should be considered electromagnetic radiation by applicants' logic (i.e. any moving charged particle, proton, electron, etc), it is not according to the discussion in Lerner et al. The ion optics lens (h) may be relevant to the claims, but exactly what it is using is not disclosed in the translation.

The most relevant teaching in the translation of DE 43 29 338A1 to Nishikawa et al appears to be embodiment 2, with its corresponding device illustrated in Fig. 4. See pages 10-11 and 15-16<sup>+</sup> of the translation, where UV light is applied to solidify patterns formed by droplets of solution to make a photo mask, however the polymerization which can be considered coalescence takes place after the droplets are deposited on the substrate, hence the UV is not effecting the operating zone defined by the claims

6. Applicant's arguments filed July 18, 2003 and discussed above have been fully considered but they are not persuasive.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication should be directed to M L. Padgett at telephone number (703)-308-2336 or after mid December (9<sup>th</sup> or 10<sup>th</sup>) at (571) 272-1425, on M-F from about 8:30 am – 4:30 pm ; and FAX # (703) 876-9306

M.L. Padgett/lap

November 17, 2003

Corrected November 24, 2003

11/24/03 *lap*

  
**MARIANNE PADGETT**  
**PRIMARY EXAMINER**